



Examining the relationship among meteorology patterns, air pollution and health outcomes for use in assessing climate impacts

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Abstract:

Presentation in Joint Session 20, Climate-Sensitive Diseases: Dust, Meningitis, and Respiratory Health (Joint Session 20 between the Presidential Forum, the First Environment and Health Symposium, and the Second AMS Conference on International Cooperation in the Earth System Sciences and Services) at conference. Recent research provides evidence that weather patterns in the northern hemisphere may be altered due to changes in climate induced by anthropogenic emissions of greenhouse gases and other pollutants (e.g., airborne particles). This study investigates the use of weather patterns in New York State for forecasting the impact of climate change on ambient pollution levels and health outcomes. Trajectory analyses were performed for eight meteorological regions across ten summers (1997 - 2006) in New York State. These trajectories were grouped by weather patterns and related to ozone concentrations and respiratory-related hospital admissions. Air masses were also associated with major regional emission sources in the Ohio River Valley, making this study one of the first to link emissions, transported pollution, human exposure and health endpoints. These grouped weather patterns will be used to predict the impact of changing weather induced by climate change on human health outcomes. This paper presents the approach for developing these weather pattern indices and discusses the preliminary results in linking emissions, ozone concentrations and health outcomes.

Source: https://ams.confex.com/ams/90annual/techprogram/paper_164522.htm

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution

Air Pollution: Ozone

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Climate Change and Human Health Literature Portal

Geographic Location:

resource focuses on specific location

United States

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease, Respiratory Effect

Infectious Disease: Airborne Disease

Airborne Disease: Influenza

Respiratory Effect: Asthma, Bronchitis/Pneumonia, Chronic Obstructive Pulmonary Disease, Other Respiratory Effect

Respiratory Condition (other) : chronic bronchitis; emphysema;

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content